

Trestain 4.1-3
Appl. No. 10/820,690
Amdt. dated July 7, 2004
Prior to first Office Action

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph [0027] with the following amended paragraph:

[0027] To operate the conveyor device 10, the conveyor device 10 is completely constructed with the conveyor motor 11 in the housing 12 and the conveyor plate 16 connected to the drive plate 22 and follower plate 24. The conveyor tray 104 and crossbar 106 (if used) are also connected to the conveyor plate 16. Where the conveyor device 10 is used to remove scrap or parts 102 from a stamping press 100, the conveyor device 10 is mounted to the bottom of the press 100 by a bracket 108 (Figure 2). The conveying device 10 is positioned such that when the press 100 is operating, the parts or scrap 102 will fall into one (1) end of the conveying tray 104 and be moved along the conveying tray 104 and out of the press 100 by operation of the conveying device 10. In one (1) embodiment, the conveyor motor 11 is bi-directional such that the parts 102 can be pulled out of the press 106 on the side adjacent the conveyor 10 or can be pushed through the press 100 to exit the press 100 on the side opposite the conveyor 10. When the conveyor 10 is in position, a source of fluid is connected to the tee 35 which is connected to the main

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control valve 34 and to the limit switches 44 and 46. In one (1) embodiment, in the initial position, the first bellows 30 is fully deflated and the movable conveyor plate 16 is fully forward toward the first end wall 12A of the housing 12. During operation, fluid is moved into the tee 35 and then distributed through supply lines 150 to the limit switches 44 and 46 and to the main control valve 34. Initially, fluid is supplied to both limit switches 44 and 46. The fluid is then distributed from the main control valve 34, through the various supply lines 150 to the first valve 36 and into the first bellows 30. As fluid moves through the first valve 36 and into the inner chamber of the first bellows 30, the first bellows 30 inflates and expands which moves the drive plate 22, the follower plate 24 and the conveyor plate 16 in a direction toward the second end wall 12B of the housing 12. When the drive plate 22 has moved the maximum distance forward toward the second end plate 20, the second trigger rod 48 contacts the trigger of the second limit switch 46 adjacent the second end plate 20 and activates the limit switch 46. When the second limit switch 46 is activated, a signal is sent from the second limit switch 46 to the main control valve 34. The signal causes the main control valve 34 to switch the

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flow of fluid from the first bellows 30 to the second bellows 32. The second limit switch 46 is adjusted such that as soon as the second limit switch 46 is activated, the signal is sent to the main control valve 34 and the control valve 34 instantaneously switches the flow of fluid. Thus, there is no pause or stop between the filling of the first bellows 30 and the filling of the second bellows 32. As the second bellows 32 fills with fluid, the second bellows 32 inflates and expands and moves the drive plate 22 toward the first end plate 18. Movement of the drive plate 22 toward the first end plate 18 causes the first bellows 30 to be deflated. The first valve 36 allows the fluid in the first bellows 30 to be quickly exhausted, thus reducing the resistance on the drive plate 22. The speed control muffler 40 reduces the noise caused by the fluid quickly leaving the first bellows 30. The speed control muffler 40 can be adjusted to control the flow of fluid exiting the first bellows 30. In one (1) embodiment, the main control valve 34 allows the full amount of fluid flow at a predetermined rate of flow to the second valve 38 which allows the second bellows 32 to fill quickly and to move the drive plate 22 and the conveyor plate 16 quickly in the direction toward the first end plate 18. When the

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drive plate 22 has traveled the maximum predetermined distance toward the first end plate 18, the first trigger rod 48 contacts the trigger of the first limit switch 44 and activates the switch 44. Activation of the first limit switch 44 causes the first limit switch 44 to send a signal back to the main control valve 34. When the signal reaches the first flow control valve 52, the first flow control valve 52 controls and alters the signal to the main control valve 34. In one (1) embodiment, the first flow control valve 52 reduces the signal. The reduction of the signal to the main control valve 34 causes a slowdown in the switching of the fluid flow from the second bellows 32 to the first bellows 30 and causes a momentary pause in the movement of the drive plate 22. Thus, the transition of the conveyor plate 16 from moving in the backward direction toward the first end wall 18 to moving in the opposite forward direction toward the second end wall 20 is not instantaneous. The pause in the movement of the conveyor plate 16 allows for the conveyor plate 16 or conveyor tray ~~102~~ 104 to reestablish a frictional connection with the items or objects ~~150~~ 102 on the conveyor plate 16 or in the tray ~~102~~ 104. The first flow control valve 52 also reduces the rate at which the main control valve 34 sends fluid to

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the first bellows 30. In this embodiment, the rate of inflation of the second bellows 32 is greater than the rate of inflation of the first bellows 30. The first flow control valve 52 allows a predetermined rate of flow of fluid to the first bellows 30. In one (1) embodiment, the rate of the flow of fluid to the first bellows 30 begins slow and gradually reaches its full speed. This gradual increase in fluid flow results in a gradual acceleration of the drive plate 22 in the forward direction which is slower than the acceleration of the drive plate 22 in the rearward direction. The quick expansion or inflation of the second bellows 32 causes the drive plate 22 to move quickly toward the first end plate 18 while the gradual, slower expansion or inflation of the first bellows 30 causes the drive plate 22 to move more slowly in the forward direction toward the second end plate 20. The uneven bi-directional movement of the drive plate 22 with the conveyor plate 16 causes the objects or items ~~150~~ 102 on the conveyor tray 104 to move in a direction toward the second end wall 20 of the housing 12.

Please replace the paragraph [0028] with the following amended paragraph:

[0028] In one (1) embodiment, the conveyor 10 is a bi-

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directional conveyor and the conveyor motor 11 can be operated to move objects ~~150~~ 102 in either direction along the conveyor plate 16. In this embodiment, the conveyor motor 11 is provided with the second flow control valve 54 and the bi-directional control switch 56. The bi-directional control switch 56 allows for changing the rate of inflation of the bellows 30 and 32 which allows for changing the direction of flow of parts 102 along the conveyor 10. To operate the conveyor 10 to move the parts ~~150~~ 102 in the opposite direction toward the first end wall 12A, the bi-directional control switch 56 is activated. The bi-directional control switch 56 changes the direction of the flow of fluid such that the second flow control valve 54 is used and the first flow control valve 52 is bypassed. In this embodiment, the predetermined rate of fluid flow to the second bellows 32 is less than the predetermined rate of fluid flow to the first bellows 30. The second flow control valve 54 operates similarly to the first flow valve 52 and allows for controlling or metering the signal from the second limit switch 46 to the main control valve 34 and causes a slowdown in the switching of fluid flow from the first bellows 30 to the second bellows 32 and causes a reduction in the rate of fluid flow to the

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second bellows 32 while allowing the first bellows 30 to
inflate quickly.